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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,719	01/17/2006	Gunter Hofer	14603-015US1 P2003,0026 U	8403
26161 7590 07/17/2007 FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER JOHNSON, RYAN	
			ART UNIT 2817	PAPER NUMBER
			MAIL DATE 07/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,719

Applicant(s)

HOFFER, GUNTER

Examiner

Ryan J. Johnson

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/20/05, 2/16/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by McClellan et al. (U.S. Patent No. 5,687,201, as cited by applicant).
4. Claim 1: McClellan et al. discloses control circuitry for use with an oscillator (Fig. 3), comprising:
 - a control input (10) configured to receive a modulation signal (DATA);
 - an oscillator (90) comprising an oscillator input configured to receive a feed current (I_{ICO}) and an oscillator output configured to provide a frequency-modulated signal (F_{out});
 - an amplitude control circuit (110, 70, 85) control the amplitude of the oscillator as well as the frequency. Since the operating currents of the ring oscillator are varied, the amplitude and the frequency must inherently vary as well (see Fig. 6). McClellan et al. also describes in the abstract that the ICO gain varies with its input current.) comprising an amplitude control input that is connected to the oscillator output (the variable gain

charge pump is connected to the oscillator output through the phase comparator 10) and an amplitude control output that is connected to the oscillator input to provide the feed current to the oscillator (I_{CO} is connected to the oscillator I_{CO} and provides a feed current; col.5,24-27),

wherein the amplitude control circuit comprises internal circuitry (85) configured to affect the feed current in response to the modulation signal (the V to I converter will affect I_{CO} in response to DATA, phase comparator 10, and charge pump 70).

5. Claim 2: McClellan et al. discloses wherein the internal circuitry comprises current switches that are connected in parallel (transistors A and B, P-1 to P-n, and 92-1 to 92-n are connected in parallel; Fig.6).

6. Claim 3: McClellan et al. discloses wherein the current switches comprises current mirror circuits (92-1 to 92-n are current mirror circuits; col.6,42-48).

7. Claim 4: McClellan et al. discloses wherein the amplitude control circuit further comprises a gain control circuit (70) and a second current mirror circuit (110; col.6,58-67);

wherein the current mirror circuits connect to an output of the gain control circuit (through 85), the gain control circuit being configured to receive the oscillator output (through phase comparator 10); and

wherein the second current mirror circuit (110) provides the feed current to the oscillator input (through the charge pump 70 and V to I circuit 85).

8. Claim 5: McClellan et al. discloses the control circuit further comprising the control input (I_p) and an output that is connected to control inputs of the current

switches (the output of the charge pump 70 is connected to the current switches through the V to I converter 85)

wherein the control circuit is configured to trigger the current switches in response to the modulation signal (charge pump will affect lico in response to DATA, phase comparator 10, and the output of the feedback circuit 110).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6, 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClellan et al. (U.S. Patent No. 5,687,201, as cited by applicant) in view of Hiben et al. (U.S. Patent No. 5,323,125). McClellan et al. discloses the limitations of claims 1-4, but does not explicitly disclose that the modulation signal is digitally coded using frequency shift keying. Hiben et al. discloses a phase-locked loop to modulate a frequency shift keying signal (Fig.1) and notes that using a PLL to modulate such a signal is well known in the art (col.1,14-34). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a FSK signal as the DATA signal as

disclosed by Hiben et al. in the PLL of McClellan et al. in order to have provided a suitable signal for radio frequency modulation.

11. Claims 8, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClellan et al. (U.S. Patent No. 5,687,201, as cited by applicant) in view of Cloke (U.S. Patent No. 4,071,832). McClellan et al. discloses the limitations of claims 1-4, but does not explicitly disclose that the oscillator is an inductive-capacitor oscillator that comprises a resonant circuit, at least one capacitive circuit that is usable to affect a frequency of the resonant circuit, and at least one inductive circuit that is usable to affect the frequency of the resonant circuit. Cloke discloses using current controlled LC oscillator (Fig.1) with a resonant circuit including an inductor (L) and a capacitor (C) in order to provide an inexpensive and simple oscillator (col.1,5-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the LC oscillator disclosed by Cloke as the ICO in the circuit disclosed by McClellan et al. in order to have provided the benefits of an inexpensive and simple oscillator.

12. Claims 9,13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClellan et al. (U.S. Patent No. 5,687,201, as cited by applicant) in view of Okanobu (U.S. Patent No. 4,581,593). McClellan et al. discloses the limitations of claims 1-4, but does not explicitly disclose that the oscillator is a crystal oscillator comprising an oscillator crystal that is usable to affect an oscillator frequency of the

oscillator. Okanobu discloses using a current controlled crystal oscillator (Fig.1) in order to provide an improved carrier-to-noise ratio (col.1,67-col.2,2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the oscillator disclosed by Okanobu as the ICO in the circuit disclosed by McClellan et al. in order to have provided the benefits of an oscillator with good carrier-to-noise ratio.

13. Claims 7,11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClellan et al. (U.S. Patent No. 5,687,201, as cited by applicant) in view of Welland et al. (U.S. Publication No. 2002/0041216). McClellan et al. discloses the limitations of claims 1-4, but does not explicitly disclose a capacitive circuit that can be adjusted in response to a tuning voltage in order to affect an oscillation frequency of the oscillator. Welland et al. discloses using a variable capacitance in an LC oscillator (Fig.3) in order to provide the benefits of coarse frequency tuning ([0016]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented a variable capacitor as disclosed by Welland et al. in the oscillator disclosed by McClellan et al. in order to have provided the benefits of coarse frequency tuning.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Henrion (U.S. Patent No. 6,198,360) discloses a modulator circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan J. Johnson whose telephone number is 571-270-1264. The examiner can normally be reached on Monday - Thursday, 9:00 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



/RJJ/

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PRIMARY EXAMINER
ART UNIT 2817